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# Production Planning and Control

By C. A. HENDERSON

*Canadian General Electric Co., Ltd., Peterborough, Ont.*

(Before Toronto Chapter, March 27, 1935)

**D**URING the past four or five years of low volume business, most industrial concerns have been looking in upon themselves and endeavouring to eradicate the shortcomings of the methods previously in use. Like many others, we found that we had installed the finest manufacturing equipment and modernized our accounting methods but had neglected the heart of the organization—the Production Department.

The General Electric Company made exhaustive studies in order to build up standard methods of production planning and control which would be applicable to the majority of their works. During the past three years these methods have been gradually introduced into several of the U.S. plants of the Company, with most beneficial results, and publicity has been given to their general features in articles contributed by Mr. T. M. Landy.

In our local plants there was also a need for more adequate control over production and costs, which became more pressing as business began to move upward from the low point of 1933.

We have, therefore, been engaged during the past year in adapting to our use, the methods being installed in the General Electric Company, and I will endeavour to sketch for you the scope of production planning and control as it applies to our organization.

It is my purpose to keep as far as possible from the realm of theory, leaving that to the practising accountants and engineers amongst you, and to describe, in the limits of the time available, the practical applications of these methods. This description is of a composite nature, and not intended to apply to any one department in strict detail.

The purpose of any method of control of production should be to co-ordinate all activities from the time the order is received in the plant until the finished product is shipped to the customer, in order to meet the requirements of delivery and costs.

## Organization

For the achievement of these results, organization is essential, and the four following groups, each reporting to the Works' Manager, seem to present the most efficient operating arrangement:—

Engineering and Drafting

Production

Manufacturing

Accounting

Needless to say, the capacity of the individuals in the key positions, determines the efficiency of the group.

The Production Supervisor should be held responsible for the following activities:—

scheduling, purchasing, planning, wage rate and motion study, ordering, producing all orders, moving material, stock rooms, receiving and shipping.

This single responsibility removes friction between sections and prevents alibis. The fiction that a production supervisor makes an un-

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satisfactory supervisor of inventories because his interest is production first and inventories last is not borne out when satisfactory records and methods are used.

In our Works we have two types of production—special requisition jobs and standard and semi-standard repetitive lines.

### Manufacturing Schedule

In order to provide an objective for the various sections involved and to obviate delays, a schedule chart is prepared upon receipt of a special requisition. Starting and finishing dates are assigned to all sections of the preparatory work, including engineering, drafting, planning and purchasing, as well as manufacturing all parts, sub-assemblies and final assemblies. If all sections abide by the time allowance, the shop is not obliged to work against time to make up for an abnormal percentage of time consumed by engineering and drafting. As will be noted, time is allowed for planning as well as for fabricating.

For standard repetitive lines, once the device has been proved and prints and planning records prepared, manufacturing time can be recorded for each device or line of similar devices.

### Blueprints and Material Lists

The Engineering Section then commences preparation of data and the Drafting Section proceeds with the drawings in accordance with the dates given on the schedule. As the draftsman makes the tracing, he enters on a separate sheet of paper the various items of material involved in the part or assembly. This becomes the foundation of the material list, and description, size and quantities of material are indicated. When a standard material book or other form of authorized

## NOTICE OF ANNUAL MEETING

The annual meeting of the Canadian Society of Cost Accountants and Industrial Engineers will be held on Monday, May 27, 1935, at 1 p.m., daylight saving time (12 o'clock standard time) at the Hamilton Golf and Country Club, Ancaster (near Hamilton).

May 13, 1935.

W. A. McKague,  
General Secretary.

A golf game will be held in conjunction with our annual meeting.

The program is briefly as follows: There will be a director's meeting at the Club for luncheon at 12.30 and any member and his guests who wish to come for luncheon will be welcomed. The formal annual meeting will be held at 1 p.m. and will be followed by a meeting of the new board for election of officers and other business. The golf game will start about 2.30. The day will conclude with dinner at the golf club, for which every one taking part should try to remain. Times mentioned are daylight saving. If necessary, part of the business meeting will be postponed until the evening.

A separate notice of this event is being sent to each Toronto, Hamilton and Central Ontario member.

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stock list is employed, the draftsman is enabled to select stock sizes wherever possible and identify them as such on the material list.

At this time, advance ordering of special tools and material is carried out.

The original bill of material is now passed to a typist who types a record copy and a hektograph copy. Blueprints are obtained from the record copy to accompany the blueprints of the drawing. The hektograph copy is sent to the Planning Section where detailed routing is entered and then passes on to Inventory Control Section where the material is appropriated and any further ordering is completed. With proper records, substitutions of material would generally be made in the Drafting Section before the specifications are compiled, but if, in the Inventory Control Section, they are later deemed necessary, permission is obtained from the Drafting Section and recorded on the hektograph copy only, the master copy in the Drafting Section being unchanged. Material specification is thus definitely controlled by the Engineering Department.

By this method, material lists are originated at the same time that the material is being originally specified, and eliminates waste time and further clerical effort in other sections along the line, in consulting drawings and compiling material lists.

Copies are now duplicated from the hektograph master for planners, stock accumulators, and a cost summary sheet for the Cost Section. Material substitutions, as noted above, were recorded on the hektograph master before duplicating so that all copies will show all changes and substitutions. The Cost Section, therefore, receives a list of the actual material to be used on this particular run, rather than the theoretical, while the master copy in the Drafting Section retains the record of the material as originally specified.

### Planning Records

The planning records are now prepared by the planners, using a copy of the print, a copy of the material list and a floor layout with each work station numbered, together with any engineering information required. On the planning card will be entered the drawing number, specification of raw material and standard quantities per thousand pieces, feet, etc., sequence and description of operations, work station numbers, tool numbers, operation prices and set-up prices also any other special data.

From the completed planning card a hektograph master order is typed, or an addressograph plate prepared.

For standard or semi-standard repetitive lines, the prints, material lists, planning records and master orders remain in effect, the quantities, dates and order numbers only being changed with each repetition.

### Preparation of Orders

From the hektograph master order a complete set of paper is duplicated, including material disbursement orders, identification tags, stock delivery, pay vouchers, cost card, move card and other control copies referred to below. When tabulating equipment is used, tabulating cards are duplicated as required.

These various copies of the order are then distributed as follows.—

Index copy to the dispatch station where it is filed in the inactive order file.

The material book, consisting of material disbursement, material available, move card and identification tags, to the source of the material.

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Production progress copy to consecutive file in central production section.

Labor book, consisting of dispatch order, stock delivery and complete set of pay vouchers, to dead load or inactive order file in central production section.

The inactive order files in the Production Section and Shop and also Stores files are filed by starting date, based on the scheduled dates place on the orders, so that everyone is working to the same end.

### Identifying Blueprints and Tools

Blueprints and tools deserve separate mention as they are a prolific source of errors and delays. Blueprints may be maintained in one central blueprint file for the works or in departmental files, the central file being preferable. In this case a copy of the order is sent to this central file, and before the scheduled date, the print is delivered to the central production section and attached to the labor book, the order copy remaining as the charge for the print to be returned on completion of the job. This ensures that an accurate print will be delivered to the operator at the proper time.

Similarly, tools such as dies, jigs, etc., may be kept in a central crib or in the department. If in a central crib, the move card and tool check copy of the order is distributed to the crib attendant who identifies the tool and then forwards this copy to the Stores, where it is joined to the material book. The material is therefore, not released until the tool has been located. If blueprints and tools are kept in a central location in the department, they may be indentified in advance by means of the index copy distributed to the dispatcher in advance of other information, as noted above.

### Routine in Manufacturing Departments and Stores

We observed in the beginning that the Production Department should be responsible for producing all orders, moving material, etc. In addition to the central production section, there is a dispatcher or production representative in each manufacturing section, which may be either a large department or group of small departments, for the purpose of controlling production and cost. The dispatch station is equipped with files and the dispatch board, the pockets of which represent work stations in the area controlled.

We will now describe the method of following production in the manufacturing departments.

In the Stores the stockkeeper has checked and identified the material specified on the material book and has sent the "material available" copy to the central production section. This releases the labor book to the dispatch station and the dispatcher is thereby notified that the material and tools are ready. He moves the index copy from the inactive to the live file where it will now serve as an index of the orders on the dispatch board. The first work station is circled on this copy and the labor book placed on the dispatch board in the proper pocket.

On the schedule date the material and tools are delivered to the first work station, the move card being delivered to the dispatcher as notification that the material is on the floor. The operator who is to perform the initial operation obtains his pay voucher from the dispatcher by quoting his work station number, registers the starting time by job clock, and returns to his work station with print, tools and material on hand. The dispatcher places the dispatch copy and remaining vouchers in the upper section of the pocket representing the work station, indicating that the job is in process.

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When the operator completes his job, he obtains the foreman's approval, returns to the dispatch station, registers the finishing time by job clock, and turns in the voucher and print to the dispatcher. He is then given a new voucher and print and proceeds as before. The dispatcher records the voucher on the order copy, sends the voucher to the Payroll Section and transfers the print and remaining vouchers to the lower section of the pocket representing the next work station. He then issues a move card instructing the trucker to move the material to the next work station, and return the tools, if necessary. This cycle is repeated until all vouchers are exhausted and the operations completed, at which time the dispatcher instructs the trucker to move the material into the stock room.

The blue print is returned to the master file where the order copy, retained as a charge, is then destroyed. The dispatch copy is stamped and sent to progress file in the central production section, indicating that the job is completed, and the index copy is destroyed. All copies of the order have now been cleared from the dispatch station.

The dispatch station acts as a bureau of information for dispatchers and foremen, indicating jobs scheduled, jobs in process on the floor, idle work stations, labor load on machines and departments, necessity for overtime, holdups in production, etc.

As the dispatcher is required to have knowledge of the location and progress of all jobs on the floor, no work is given out to operators or jobs moved without the permission of the dispatcher. Delays of operators in obtaining material, waiting around for information from the foreman, or for a pay voucher, are practically eliminated. The pay voucher in the possession of the operator indicates what he is to do, where he is to do it, and what he is to be paid.

The foreman is relieved of issuing pay vouchers, chasing material and blueprints, etc., and can devote all his time to managing his department, controlling expense and waste, training and supervising operators, keeping machines in running condition and seeing that orders are produced in the sequence and in the time required by the production Department.

Accounting for materials disbursed and finished parts produced is also accomplished by means of copies of the order. When raw material is sent into the manufacturing department, the stockkeeper removes the disbursement copy and sends it to the Accounting Department for pricing and distribution. Finished parts delivered to stores are accompanied by finished stock delivery copy of the order which is detached by stockkeeper, checked and sent to the Accounting Department.

### Costing

Mention was made previously of the Cost Section's copy of the material list or cost summary sheet. For special requisition jobs a cost card is issued with other copies of the order and sent to dispatch station. As each operation is completed, the dispatcher enters operator's clock number, quantity finished, and elapsed time, and on completion of job, the card is transmitted to the Cost Section by way of the Production Department. After making the extensions and adding the burden, the results are transferred to the cost summary sheet containing the material, and the cost is then complete. This simplifies and speeds up costing of special jobs.

Costs are also controlled by authorized changes in planning records. When such necessity arises for change in operation, rate, etc., a Recommendation to Change Planning form is issued, from which

## PRODUCTION PLANNING AND CONTROL

all master records are changed, and the change or addition also recorded in red ink on the cost record card. In the case of extra costs such as re-work, etc., for one lot only, an extra cost report is approved by inspector as authority for further voucher or vouchers and the extra labor recorded as above.

Set-ups are an important factor in cost and difficult to control. Orders are scheduled so that operations requiring similar set-ups may be run together, and further control is exercised by the accumulation of orders in the various pockets of the dispatch board, representing the machines on which the groups of orders are to be run.

### Central Production Section

In the Central Production Section we observed that two files were maintained, a progress file of pink copies filed consecutively by shop order, and a "dead load" or inactive file composed of the labor book, filed by starting date.

When raw material is ready, the stockkeeper returns the yellow material available copy, which is filed in place of the pink production copy, the remaining pink copies indicating the orders for which materials or tools are not ready.

When the part is finished, the white dispatch copy is returned by the dispatcher and filed in place of the yellow copy, and when the file has changed from pink to white, all parts are complete. For special jobs, an accumulation copy of the order and a copy of the material list may then be sent to the proper stock room to perform the accumulation. When this has been made, the return of the accumulation copy releases the labor book for the sub-assembly or assembly operations. On repetitive lines, this part of the routine may be omitted.

The file referred to as the dead load, or inactive file, containing dispatch copies and vouchers filed by starting date, indicates all overdue orders, as these orders are not released to the dispatcher until it is known that material and tools are available.

Information disclosed by the flow of order copies and the various files, confines "chasing" to actual material and tool hold-ups before the job can commence, and to those failures in material and tools which occur during manufacture. It is not a case of chasing individual jobs to the exclusion of all others, but a steady pressure on all jobs. The central production section also follows progress on jobs being performed in contributing departments, to ensure delivery to the department affected within the time scheduled.

### Material Control

As previously mentioned, in all our works we have to cope with two types of production:—special requisition work and semi-standard and standard repetitive work.

On special requisition work, drawings and material lists are prepared as outlined and materials and tools purchased specially for the job, using stock materials or parts whenever possible, this latter information being obtained from standard stock lists. The schedule chart plays a very important part in this connection, as it enables the Order Section to arrange for deliveries from vendors or other works of the Company on a definite time basis.

Semi-standard repetitive work includes devices which are not authorized for stock, but which must be delivered on short notice; and repair work. To satisfy such orders, common parts are authorized in reasonable quantities, and also raw materials in cases where



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slight differences in customers' requirements necessitate fabrication of certain parts before assembly can commence. Definite information on which to base the quantities to be carried in stock in this category is difficult to obtain, and can only be based on experience and probable demand as estimated by commercial departments. Periodical inspection of stock records is essential in order to forestall obsolescence.

Production quantities of standard devices to be manufactured for stock are authorized by Commercial Departments each quarter, based on estimated demand.

In order to economically and accurately order raw materials and parts to support this program, it is essential to be able to compile gross quantities where various parts are made from a common size or kind of raw material, or where identical parts may be required in the assembly or various finished devices. This is accomplished by means of card records.

In addition, it is desirable to establish the raw materials and parts for the authorized devices on a self-continuing basis, and for this purpose, order points and order quantities should be worked out, to be carried on the stock records. The order point for raw materials is based on the requirements for the period, and the time to procure the order quantity, and the latter is dependent upon factors of price and handling facilities. Each item must be considered separately.

In developing an order point for manufactured parts, full consideration must be given to manufacturing time, including transportation and departmental load. Order quantities are not very difficult to determine where no set-ups are involved, but as set-ups are a considerable item in the majority of cases, this element and the carrying charges must be taken into consideration. When these two adverse factors nearly balance, the result is an economic order quantity. In addition, however, such factors as deterioration, storage facilities, and obsolescence have a distant bearing on this problem, and in order to minimize the danger of the latter, quantities should not exceed six month's requirements.

We maintain visible stock records on which materials are appropriated against each order as it is issued. With the above order points and order quantities entered on the order card in the stock records, each item is brought to the attention of the stock supervisor when the available stock reaches the order point. This point then becomes a checking point, as materials or parts are not automatically re-ordered, but only after condition of finished stocks, departmental load, etc., are taken into consideration.

Two cards are maintained in the visible records for each stock item; a stock movement card and an order card. The order card is withdrawn as indicated above, and if it is decided to order, the order quantity, shop order and dates are entered thereon, raw material calculated and assigned on the raw material card. The order card is then passed to the Order Section where it acts as an order to prepare the necessary paper from the hektograph master order referred to previously.

The copies of the order returned by the stockkeeper after he has located the materials, act as a check on the accuracy of the stock records. On most standard lines a physical accumulation of component parts, based on the order quantity, is made in the stockroom by the use of the material list. The Production Department is advised of quantities short on any item, for follow-up purposes, or an available slip returned when the accumulation is complete.



## REFERENCE LITERATURE

The record of shipments and finished stock available is reviewed periodically, and the order quantities revised when necessary.

Material utilization is in the hands of the Engineering Department, who take precautions to ensure that present stocks are cleaned out before the use of revised material is commenced. When a device or line is discontinued, the unbalanced parts or material remaining are inventoried and disposition determined by joint action of Engineering and Production Departments.

It is, of course, equally important to employ similar means of maintaining balanced stocks of materials used in processes, other than direct materials, and of cartons and labels. All of such items are potential causes of delays in production.

A complete inventory is taken each year by means of the individual tag system. Items are classified as active, inactive or obsolete, determined by the usage as disclosed by the stock records and also by probable demand. Notations regarding inactivity and obsolescence are entered on the stock records, and efforts made to dispose of such items as quickly as possible.

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The very modern young miss about to be married decided to test her future husband.

With this object in view, she called on her girl friend.

"I want you to go for a walk with Bob," she commented, "and at a suitable moment ask him to kiss you."

Her friend consented.

The following day the bride-to-be called round to see what had happened.

"Well, did you ask Bob to kiss you?" she asked.

Her friend blushed.

"I didn't get a chance," she confessed. "He asked me first."

\* \* \*

A firm of shipowners wired one of their captains: "Move heaven and earth; get here on Friday."

Just as they were becoming very anxious they got the reply: "Raised hell and arriving Thursday."

# Cost Accounting in an Upper Leather Tannery

By G. F. COSSAR, C.G.A.  
*A. R. Clarke & Co., Ltd., Toronto*

(Before Central Ontario Chapter, March 11, 1935)

**B**EFORE going into a detailed description of cost accounting for upper leather tanneries, I think it would be advisable to give you a general idea of the processes necessary to obtain upper leather from raw hides. It should be noted that in addition to upper leather there are many other types of tanneries producing sole, belting, harness, glove, garment, bag, lining and fancy leathers, whose operations are in some cases, quite different, and whose cost systems therefore, will, of necessity vary accordingly. Upper leather, as perhaps you will have gathered from the name, is leather used in the upper part of a shoe. For the purposes of this paper we will consider only upper leather produced from cow and steer hides. There are, of course, other upper leathers, the chief of which are calfskin, kid and reptiles.

## Process

Briefly, an outline of the tannery process is as follows.

Hides are received into the tanner's hide shed from either packers or collectors, in a condition known as "green salted," and are kept there until required for processing. These have already been cured, that is salted with coarse salt and kept in pack for approximately thirty days. When required for tanning the hides are trimmed of heads, shanks, tails and irregularly shaped parts, and stamped with a lot number on each side at the butt. Reference to this lot number will be made later. To facilitate tanning and to avoid constant changes in the amounts of tanning materials with each lot, the hides are assembled, before processing, into packs of even weight. As the hides are soaked in, consecutively numbered pack tags are made out showing number of hides and lot number, one tag accompanying each pack through the various processes. The hides are then washed in wash drums to rid them of dirt, salt, manure, etc. They are then cut down the backbone from head to tail so that the hide is split into two equal sides. From this point on hides are referred to as "sides." After soaking in sodium and lime vats to remove hair and animal matter, the sides proceed to the fleshing machine, where, by means of bladed cylinders, any fat and flesh that still adheres to the flesh side, is removed. From the fleshing machine, the next process is the beamers, where men by hand trim off stringy parts of the side and any flesh missed by the fleshing machine, to prepare the sides for splitting. The sides are now in a condition known as "in tripe," because at this point they bear a striking resemblance to that nutritious delicacy. When exact cost and yield records are kept, the sides are here weighed individually, the weight in pounds being stamped on each side by means of a steel die. Reference to this weight, which is known as the tripe weight and how it is used in costing, will be made later. The sides then proceed to the splitting machine, where they are split into two thicknesses, the upper part of which is called the "grain" and the

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bottom or flesh side, the "split." The split is a by-product, and is handled as such, and is used in the manufacture of cheap leather. We are concerned with the grain, which goes to the tannery proper, where in tan drums the grain sides are tanned. After tanning, while still wet, the sides are shaved to an even thickness, set-out, then oiled and hung to dry. After drying they are piled down to age, the aging period depending on the type of leather required. When this time has elapsed the sides are piled in wet sawdust then staked, a mechanical process to make them pliable, then tacked on to boards to get rid of stretch. Up to this point the sides are maintained in the same packs as soaked in. From this process on however, each pack loses its identity, as sides may be sorted out of packs to produce different kinds of upper leather. Also, the finishing operations make it practically impossible to keep sides together in individual packs. In transferring sides from one process to another they are counted into packs of equal quantities and pack tags for production and inventory purposes accompany the sides.

The sides are now rough leather, ready for finishing. In finishing patent leather the sides are degreased, a process to rid the leather of grease, toggle tacked on frames, and the various dope and varnish finishes applied by hand, after which they are baked and sunned. The sides are then stripped from the frames, trimmed to remove rough edges, and measured by a machine that calculates the measurement in square feet of each side, which measurement is stamped on the leather. Incidentally, the unit of sale in upper leather is the square foot. Sorters then grade the sides into the various selections and the leather is now transferred to finished stock, awaiting shipment. In passing, it should be noted that there are some forty different selections or grades of black patent leather, and in tanning any one purchase of say two thousand sides, regardless of type or origin, some of each selection will be produced. Other upper leather is finished in a somewhat similar manner, the main difference being that the materials used and methods of applying the finishes vary. The several pigment coats necessary are applied by hand to the sides, which are then glazed, boarded and trimmed. They are measured and sorted as in the case of patent leather.

### Types of Hides

At this point I would like to correct an idea you probably have, that "a hide is just a hide." You may be surprised to learn that there are some fourteen main classifications of big packer hides, seven of small packer hides, and eight main types of country hides sold on the Chicago market, and while this is the chief market on this Continent, it is only one market. All these types are used in producing leather, but of course only certain of these are suitable for upper leather. In addition to the Chicago market, which is the basis of prices in the United States, there are many others. Hides are sold in all countries producing beef, the chief of which are Canada, Great Britain, South America, each of the Scandinavian countries, Holland, France, Germany, Italy, Lithuania, New Zealand, Australia, etc., the hides from each market having special peculiarities making them more or less desirable for the production of upper leather. Each individual market, therefore, has its own price, which is based upon world markets, with premiums or discounts due to the special characteristics. The two main classifications of hides are packers and countries. A packer hide is one that has been taken off in a big packing house by experienced butchers, and properly cured. A

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country hide, as the name implies, is one taken off by a country butcher, and is collected by dealers who attend to the curing and resale to tanners. You can appreciate that packer hides are freer from cuts, as they are carefully taken off and are in better cured condition due to being properly salted. Since cuts and poor condition of hides affect adversely the quality and selling price of leather, packers therefore, demand and obtain a premium in price over country hides. Similarly, hides from some countries, and even certain parts of countries, produce higher quality upper leather than from others, and for this reason command a premium. I should also mention here, that as hides are a natural product, no two hides are identical, and we often have the result that while hides of the same weight, type and description may be tanned together, the finished leather may be quite different. It is quite often the case that two hides, each weighing say thirty-eight pounds and received from the same supplier, are tanned together, one producing forty feet of leather with a sale price of fifteen cents per foot, the other producing twenty-seven feet at thirty cents per foot. In addition to the difference in hides due to take-off, and to territory, there are also variations due to seasons; hides from animals killed in the late summer and fall yielding better leather than from those killed during winter and spring months.

### Cost Accounting

In considering the necessity for and the type of cost accounting records suitable for an upper leather tannery, these facts should be noted:

1. The cost of the hide in finished leather amounts to approximately one-third of the sale price.
2. As upper leather is sold by the square foot, while hides are purchased by the pound, it is essential to know at all times, the number of feet produced per pounds purchased.
3. Processing from raw hide to finished leather requires a minimum of six weeks, but sides are usually in process an average of ten weeks. Because of this lengthy period the inventories of raw hides, sides in process and finished stocks in a moderately-sized tannery, amount to several hundred thousand dollars.
4. The wide range of hides that it is possible to purchase with different prices and varying yields of quantity and quality of leather, coupled with the fact that it is not possible to purchase hides to produce any specific grade of leather.

Consideration of these facts makes it obvious that it is essential for tannery accounting to concern itself chiefly with the cost of hides in finished leather, and to maintain accurate records to protect and control inventories. In addition to and in conjunction with this, there should also be obtained statistical data relative to each individual purchase of hides, to give valuable information and guidance in the firm's hide buying policy. At the same time it is also important that tanning costs per foot be compiled, showing separately the costs of tanning and finishing materials, direct labor, and factory expenses by departments.

### Direct Departments

For purposes of supervision and cost records, the plant is usually divided into four main departments:

Beamhouse: where hides are prepared for tanning. (This includes the hide house where hides are stored.)

## COST ACCOUNTING IN AN UPPER LEATHER TANNERY

**Tannery:** where sides are tanned and made ready for finishing.

**Finishing Departments:** one for each type of upper leather produced, where leather is finished and finally transferred to finished stock.

**Finished Stock Room:** where finished leather is sorted and stored awaiting shipment.

The foreman in each department reports daily to the cost department, on forms provided for that purpose, the production in sides by operations in his department and the delivery of sides to other departments. Each one is also responsible for the taking of inventories each month end of all raw materials and sides in process, in his department.

### Accounting Procedure—Raw Hides

When hides are received at the tannery they are checked into the hide house for count and weight. They are also inspected carefully to see that they are to specifications, and tests are made to ascertain that tare allowances made by seller are sufficient. Each purchase of hides as received, is given a Hide Lot Number, which, as stated previously, is stamped on the hide when trimmed for processing. At the time the Hide Lot Number is allocated, the Cost Department opens a Hide Lot Sheet for each purchase, on which is entered from the purchase voucher, the following information:

Lot Number

Name of Supplier

Point of Shipment

Type and Classification of Hide

Number of Hides

Gross Weight

Allowances for Tare

Net Weight

Total Cost, including all charges incurred, such as freight, brokerage, etc., in bringing hides to the tannery.

Space is also provided for the following data, which is entered later as the sides are processed and finished:

Date, Pack Lot Number and quantity of Hides soaked in

Tripe Weight

Finished Leather Produced, in footage by grades

The total value of all Hide Lot Sheets opened for the month must agree with the net debits for the month to Raw Hides Purchased Account on the general ledger.

### Accounting Procedure—Sides in Process

As hides are soaked in, the first process in tanning, the beam-house foreman enters daily in his production record, called the "soak book," the details from the pack tags, and from this, entries are made on the respective Hide Lot Sheets. When the tripe weights are stamped on each side, a tally sheet showing Lot Number and tripe weight of each individual side is sent to the Cost Department where it is summarized and posted to the corresponding Hide Lot Sheets. Since the tripe weight recovered is largely dependent upon the type of hide purchased, from previous records it is possible to ascertain with a considerable degree of accuracy, the tripe weight that should be recovered from any purchase of hides.

These tripe weights are used to value sides when transferred from one department to another. They are also used to determine daily the finished leather yield, and as a guide in hide buying. At

## COST AND MANAGEMENT

the end of the month, from Hide Lot Sheets, a summary is made by main classifications or types of hides as follows:

- Number of Sides Soaked in
- Tripe Weight of Sides Soaked in
- Total Cost of Sides Soaked in
- Cost per pound Tripe Weight
- Average Tripe Weight per Side

The total cost of all hides soaked in during the month is charged to Hides in Process and credited to Raw Hides Purchased Account. The balance of Raw Hides Purchase Account at the month end is, of course, the value of Raw Hide Inventory. Hides not soaked in, as shown by the Hide Lot Sheets, must be represented by hides in the hide shed, and the balances should be checked monthly with the actual inventory of raw hides.

### By-Products

The split, which is taken from the side, leaving the grain to be tanned, may be either processed in the tannery or sold to other tanners as "pickled splits," for the production of cheap leather. In either case, since the split is a by-product of upper leather, the sales value of the split at this point should be credited to Hides in Process, and charged to By-Products Department. When splits are shipped the revenue is credited to By-Products. Pickled splits are sold by weight. Since both the selling price per pound and the weight of the split vary with types of hides, it is necessary to analyse the sales of splits to arrive at the correct credit to each type. From previous records the average weight by types is obtained, and this, extended at the current market price for splits of each type, is the value of the split.

The sides then proceed through the tannery and finishing departments, finally arriving at the sorter. As the sorter examines each side to determine the grade, he calls to an operator the following information, which is punched on a card:

- Lot Number
- Type of Hide—Main Classification
- Tripe Weight
- Footage Measurement
- Grade

These cards then proceed to the Cost Department, where, with the aid of Hollerith equipment, they are sorted and tabulated.

The information obtained daily and summarized, is as follows:

By each type of hide:

- Total number of sides sorted
- Total tripe weight
- Total footage

Analysis of sides, footage and tripe weights by grades

By dividing total footage produced by the total tripe weight of sides sorted, the yield is obtained, which is expressed as a percentage. (e.g. total production being 1,600 feet and tripe weight 2,000 pounds, the yield would be 80%.) Yield percentages are calculated daily, and cumulated during the month for comparative purposes.

A further similar analysis may be then made by Lot Numbers for statistical purposes, and entered on the Hide Lot Sheets. As soon as a lot is completed the total footage produced is divided into the total hide cost, and to this is added a fixed charge per foot to cover material, direct labour, factory, sales and administrative expenses. Total footages produced in the various grades are extended at current sales prices. The average selling price per foot is then

## COST ACCOUNTING IN AN UPPER LEATHER TANNERY

determined and compared to the cost. This calculation however, is for statistical purposes only, and is used as a further guide in purchasing hides.

From the production reports is obtained all the necessary information to credit "Sides in Process" and debit "Finished Leather" with the cost of Sides transferred. A control account "Sides in Process Control Account" with subsidiary accounts for each type of sides in process is kept as follows:

SIDES IN PROCESS						
Type of Hide .....						
Date	Details	No. of Sides	Tripe Weight	Total Value	Cost per lb. Tripe	Average per Side Tripe Wt.
1935						
Jan. 1	Inventory ....	5,000	100,000	\$ 7,000.00	.070	20.0
" 31	Less Sides					
	Finished ...	3,000	61,500	4,305.00	.070	20.5
		2,000	38,500	2,695.00	.070	19.3
" 31	Add Sides					
	Soaked, Jan.	6,000	115,000	9,200.00	.070	19.2
	Less Value					
	Splits .....			800.00		
" 31	Net value Sides					
	Soaked, Jan.			8,400.00	.073	
" 31	Inventory ....	8,000	153,500	\$11,095.00	.072	19.2

The total number of Sides in Process inventoried by the foremen each month end must agree with the total book inventory shown in Sides and Process Control Account. Differences that may occur are easily traceable as the number of sides that should be in each department may be determined by totalling the daily departmental reports of sides received and delivered. Incidentally the taking of monthly inventories is not the laborious task it may seem, as the foremen simply list from the pack tags the number of packs and sides at various stages.

### Accounting Procedure—Process Costs

**Costs of Tanning.** These costs are divided into the usual classifications, Direct Material, Direct Labor, and Factory Overhead, and are cumulated in a Process Inventory Account separately from Hide Costs.

**Direct Material.** Raw material purchased is charged as vouchered, to Material Purchased Accounts, a separate account being kept for each department. At each month end the foremen report inventories of material on hand, and these, when extended at laid down costs, are credited to respective Material Purchased Accounts. The balances in each account, being the cost of material issued during the month, are charged to Process Inventory Account. Material unit costs, by departments, may then be set up with comparative budget and cumulative figures.

**Direct Labor** is charged to Process Inventory Account from Payroll Account. After each pay a Direct Labor Cost report, with unit costs by operations, is then completed. Obtaining the production in sides by operations from the foreman's daily reports and the direct labor cost by operations from the payroll, it is a simple matter to



## COST AND MANAGEMENT

arrive at unit costs. In addition to unit costs by operations for the period, this report includes cumulative figures for the year compared to budgeted costs.

**Factory Overhead** is charged to Process Inventory Account from Manufacturing Expense Account in the General Ledger. As is the usual practice, fixed expenses such as taxes, insurance, depreciation, etc. are pro-rated for the year in equal monthly amounts. A Manufacturing Expense report is made monthly analysing the amounts expended by each department for manufacturing supplies, indirect labor, machinery repairs and renewals. Expenses such as power, water, fuel, building upkeep, and fixed charges are charged to the production departments on a predetermined basis. This report shows the expenses for the current month, cumulative expenses for the year, together with budgeted figures.

**Process Inventory Account.** To value the Process Inventory at each month end, standard process pack costs are used. These are cumulated to show separately the Material, Labor and Overhead Costs at each stage in the process. Incidentally, to minimize the clerical work involved, the number of process stages can be confined to approximately twenty, without any sacrifice of accuracy in costing. The inventory of sides in process shows the number of packs at each stage which, extended at the standard process pack costs, gives the amount of the closing inventory to be credited to Process Inventory Account. From these figures the amount to be charged to Finished Leather Inventory for the monthly cost of tanning and finishing is determined, as follows:

### PROCESS INVENTORY ACCOUNT

	Total	Direct Material	Direct Labour	Factory Overhead
Jan. 1—Inventory .....	140,000	30,000	60,000	50,000
Jan. 31—Add Charges .....	180,000	40,000	75,000	65,000
	320,000	70,000	135,000	115,000
Jan. 31—Deduct Closing Inventory .....	217,000	45,000	92,000	80,000
Cost of Processing charged to Finished Leather Inventory .	103,000	25,000	43,000	35,000

Dividing the cost of processing for the month by the total footage of leather finished during the month, we obtain the unit cost per foot, and since we have all the necessary details, it is possible to analyse the total cost into Direct Material, Labor and Factory Overhead costs per foot.

To avoid any over-valuing of Finished Leather Inventory should the cost of processing in any month prove excessive due to low production, the excess amount is not carried into Finished Leather Inventory, but is charged that month to Cost of Goods Sold.

### Accounting Procedure—Finished Leather

**Finished Leather Inventory.** When we come to value the Finished Leather Inventory we find a condition peculiar to tannery costing. Due to the fact, mentioned previously, that hides are a natural product, the leather transferred from Process to Finished Inventories consists of a variety of grades with sales prices differing possibly 100%. It should also be borne in mind that it is impossible to purchase hides to produce any one grade and further that it is impossible to tell with any degree of accuracy, what grades of leather will be produced

## COST ACCOUNTING IN AN UPPER LEATHER TANNERY

from any lot of hides until the sides are finished and sorted. If each month all grades were sold in the same proportion as produced, no problem would arise. However, in actual practice we may find, for the time being, some grades accumulating while others are ready sellers. It is obviously not good accounting practice to charge cost of sales with the same cost per foot for leather selling at 30c as for leather selling at 15c per foot, even though both grades may have been produced from the same lot of hides. For this reason a method of pricing inventories of Finished Leather based upon selling prices, is worked out. For example, assuming that during the current month the total cost of leather transferred from Process to Finished Stocks is as follows:

Hide Costs—from Sides in Process Account .....	\$7,000
Process Costs—from Process Inventory Account ....	9,000
	\$16,000

The total production of Finished Leather is 100,000 feet divided into several grades with varying sales prices. Analysis of the production shows the following:

Grade "A" 20,000 ft., expected sale price 30c, total sale value \$ 6,000
Grade "B" 30,000 ft., expected sale price 25c, total sale value \$ 7,500
Grade "C" 50,000 ft., expected sale price 21c, total sale value \$10,500

100,000 ft. total production	—	total sale value \$24,000
Relation of cost to sales price is 66.66%.		

Therefore,

Cost of "A" grade leather is 66.66% of 30c or 20c per foot ..	\$ 4,000
Cost of "B" grade leather is 66.66% of 25c or 16.6c per foot \$	5,000
Cost of "C" grade leather is 66.66% of 21c or 14c per foot ..	\$ 7,000

Total Cost per month ..... \$16,000

To price Finished Leather Inventory it is then necessary to value each grade as follows:

### FINISHED LEATHER INVENTORY

Grade .....	Footage	Unit Cost per foot	Value
Jan. 1—Starting Inventory.	150,000	.1800	\$27,000
Jan. 31—Less Sales .....	100,000	.1800	18,000
	50,000	.1800	9,000
Jan. 31—Add Production ...	60,000	.1700	10,200
Jan. 31—Closing Inventory..	110,000	.1746	\$19,200

The actual inventory of finished leather in the stock rooms, taken after closing each month end, must agree with the book inventory figures. If a perpetual inventory system is in operation for finished leather stock, it is of course, not necessary to take an actual count each month end. Periodical checks however, should be made to ensure that the actual stocks on hand are in agreement with the balances shown on the inventory records.

The credit to Finished Leather Inventory for leather sold is the charge to Cost of Sales for the month.

From these figures it is possible to prepare a monthly Profit and Loss Statement on the usual form.

Net Sales are set up to show total amount realized also unit selling price per foot obtained.

Cost of Sales is analysed into Cost of Hides, Material, Direct Labour and Factory Overhead with unit costs per foot for each item.

# Emergency Price Experience

By BEN W. LEWIS

*Consumers' Advisory Board, Washington, D.C.*

(Statement at Price Hearing, January 9, 1935).

THE Consumers' Advisory Board views with decided misgivings the statement in the resolution covering this hearing that the Recovery Board "recognizes the value of . . . emergency price provisions." Historically, we believe the concept of "emergency price" to have been the product primarily of an emergency within the ranks of N.R.A. itself—a fear grown to panic proportions that minimum price procedures were becoming too firmly entrenched in formal code provisions. Refuge was sought in a ceremony to be invoked only on rare occasions when, by virtue of an emergency proclamation and the recital of an appropriate cost incantation, price practices hitherto suspect were to emerge wholesome and pure. But the experience of the past months under the various clauses that have been devised to express the emergency concept has demonstrated rather clearly that price fixing under the cloak of an emergency is still price fixing, and immune to none of its traditional infirmities.

"Price fixing," though called "emergency protection of lowest reasonable costs", still exudes the same aroma.

One might well remark upon the confident spirit in which the emergency price experiment was entered upon, in light of what, at the outset, seemed its inevitable result. The complexities of maximum price fixing are notoriously great even in the field of public utility regulation, with its simple monopoly conditions, audited accounts and experienced pricing machinery, backed by tradition and directed to the accomplishment of definitely limited ends. Yet these difficulties are dwarfed by comparison with the task of setting minimum prices in the very midst of competing brands and methods, supported only by inadequate and often padded accounts (if, in fact, accounts of any sort are present), and with new and cumbersome facilities seeking blindly the achievement of purposes too vague to be named.

Thanks to that confident spirit, a substantial record is now available—in our judgment a record of failure and futility; the collapse of an idea too narrowly conceived and far too trustingly administered.

## The Cost Basis

From the outset, costs were deemed to be of vital importance and were billed to play a dual role in the emergency price procedure. They were to serve at once as the measure of the interests sought to be protected and as guarantor to the public that price fixing should not become price extortion. The Consumers' Advisory Board has never worshipped at this shrine: in our judgment, costs once incurred in a dynamic competitive society, constitute no criterion of proper prices.

But the issue has been lifted bodily from our hands and determined decisively in the arena of experience. On the record there made, the attempt to lend some semblance of scientific respectability to emergency prices by identifying them with "lowest reasonable" or "representative" costs can only be abandoned. Reliable cost data have been almost completely absent from actual price determinations, and in no

## EMERGENCY PRICE FIXING

instance have they afforded any objective measure of representativeness or reasonableness. By its own standards, emergency price fixing has failed.

### Fuel Costs

In none of the cases in which emergency prices have been set has it been possible, in fact, to do more than to pay lip homage to costs. In retail Solid Fuel, the price determinations made originally by the industry bore an indistinguishable relation to any cost figures which were available. Far from reflecting any data that could be said to represent "lowest reasonable costs", prices were set at levels dictated by wishful (and frequently mistaken) conclusions as to "what the traffic would bear." When, after months of maneuvering, cost data began to trickle into Washington for review, the Coal Section of the Division of Research and Planning was overwhelmed by its paucity. The significance and reliability of the figures which could even be considered for use were such that only after weeks of study and arbitrary revision was the Division of Research and Planning in a position to issue "cost" tables and charts. The questions still remained. Which items of cost are to be included in the calculations; and which firms (actual or synthetic) are to be elected to the fortunate group whose costs are to be covered and more than covered by the prices set? It is clear, of course, that no objective accounting considerations could dictate the answers, and any uncertainty on this score can easily be dissipated by directing attention to the debates that attended the final price actions taken by the Special Committee on Retail Solid Fuel Prices.

Bear in mind the multiplicity and complexity of even the subsidiary problems that demanded definite decision. Do selling expenses constitute properly recoverable costs? What are reasonable expenditures for executive salaries? What differentials shall be recognized between deliveries in trucks of varying sizes, and between deliveries on the curb and in the bin? How many price floors shall be set in a single area: one representing a lowest reasonable cost under all circumstances, or separate floors for equipped dealers and truckers; and, if the latter, shall there be separate floors for coal trucked from varying points of origin. What price or prices shall be set on anthracite coal? On wood? What differentials shall be set in recognition of the peculiar position of water borne fuel, and to meet the fact that coals from a given mine entering a metropolitan area at different points may bear substantially different freight rates? And ask with reference to these. What cost books, and whose, can be depended upon to throw light even in the general direction of a solution?

### Other Industries

The experience of Retail Solid Fuel in this regard has been duplicated, on varying scales and with varying emphasis generally throughout the group of emergency cases. The search for usable cost data in their ice industry was doomed to early failure, and the selection of "representative operations" and resultant minimum prices was patently arbitrary. While it is no doubt true that certain reliable price data were present in the Retail Tire emergency to an unusual extent, it is also true that the price minima were molded consciously to preserve particular outlets of distribution; and in the fixing of differentials between the nationally branded and other tires (an action taken midway in the emergency), it is clear that cost considerations were subordinated entirely to the pressure of the market.

## COST AND MANAGEMENT

The prices announced for the four standard products of the Cast Iron Soil Pipe Industry were set, in desperation, without benefit of cost data worthy of the name. And in the general state of ignorance concerning the costs of retail and wholesale distribution, it will be appreciated that the emergency cigarette mark-up, too, represents a similar lack of identity between ascertained costs of doing business and lowest lawful price.

### Cost Figures Not Available

Let us make the point clearly; reliable and significant cost figures have been almost entirely absent, and even to the limited degree to which they have been available in fact they have dictated no prices and determined no conclusions. This is not strange, perhaps, in the abstract, but it becomes highly significant with the realization that the prices set are known as "lowest reasonable costs," and that the concept of emergency price determination here in controversy reflects ostensibly no guiding price principle other than cost protection.

But, even if full and reliable cost data had been available, the result must still have been unimpressive. The record is not one alone of administrative breakdown and failure; more tragic still, it is a record of futility. The net result of the emergency declarations, in terms either of recovery or reform is something less than zero.

It is difficult to believe that the tire industry is fundamentally on a sounder basis as the result of its suspension of price cutting during the past summer. The experiment was characterized by violations of price restrictions, slackening of sales, and strife and bickering within the industry. When, moved by the sheer weight of the administrative burden and the growing volume of discontent, the Administration terminated the emergency, not a significant item in the total picture had been openly affected.

Similarly, in the case of Cast Iron Soil Pipe: As a result of a sharp break in prices following a long period of gradual decline, the industry requested and received emergency price protection. After a period of three months the protection was removed, and here, as well, without the slightest alteration in the basic structure of the trade. True, in both cases, the price cutting of last winter has not been openly resumed as yet, but in the absence of any semblance of major change in underlying forces, it must be assumed that those forces are at present in a state only of temporary paralysis induced by enforced inactivity or that the emergency months constituted only a glorified "waiting period," conducting on a grand scale to the very evils which have led to the condemnation of waiting period provisions in open price plans. The Cast Iron Soil Pipe industry still produces at a bare fraction of its capacity, and the same conditions that permitted and promoted the price warfare of a year ago still obtain in the case of Rubber Tires. We hold no brief for the prevention of price declines but we doubt that price stability so tenuously supported is, even to the industry, worth its cost.

The Waste Paper emergency declaration produced a situation fully as hectic as that which moved the Administration to take its emergency action. The basic forces here were patently incapable of being affected—certainly incapable of being corrected—by the mere setting of prices. The Administration found itself in the middle between contending groups backed by interests outside the industry itself. A price differential which had long distinguished the eastern from the western markets was ignored in the price determination, disrupting traditional economically-grounded relationships. Buyers re-

## EMERGENCY PRICE FIXING

volted from code prices, and wholesale violations were charged after a brief renewal the emergency collapsed. A resumption of the old emergency was preferred to a continuance of the new. It is difficult to believe that the industry and its customers have in any way benefited permanently from the experience.

The lumber price floor brought nothing but violations, curtailment of buying, and revolt in the industry.

The only result reliably reported from the current Insecticide emergency to date is that sales have been completely stopped.

### Price Violations

Retail Solid Fuel adds to its record of administrative breakdown the further items of price violations, unconscionable prices during the months prior to administrative review, buyers' strikes, the crippling of efficient and legitimate channels of distribution, strife and discontent, together with effects now in the making but still too vague even to be guessed at by those engaged in the determination of price policy. And when the emergency is lifted, the industry, strained and wrenched, will be, basically, precisely where it was in the spring of 1934.

Regarded in their most favorable light, the emergencies already endured have furnished periods during which an industry torn by strife might pause for rest. The outward manifestations of the struggle have for the moment been stayed by truce. Not infrequently, as we have seen, the breathing spell itself has been disturbed by new difficulties and members and customers have been menaced by new hazards—the special product of the emergency period itself. But even a quiet breathing spell must be looked at askance. In a very real sense it must be regarded as affording an undesirable delay in the working out of industrial evolution and development; particularly so to the extent that it revivifies and strengthens forces resisting inevitable change.

### What are Emergencies?

We are brought, thus, by the logic of experience to question the very fundamentals of the emergency price policy. The Consumers' Advisory Board believes that most composites of industrial difficulty are not properly to be thought of as emergencies at all; and that genuine industrial emergencies are misconceived when they are approached and dealt with solely in terms of selling prices instead of the basic forces responsible for and manifested by the collapse. Refer again to the experience of the past summer and fall:

Is the Retail Solid Fuel Industry suffering fundamentally from drooping prices; or is its basic difficulty one of chronic oversupply or of painful transition in many communities from an outmoded method of distribution to a new and cheaper form—a change made even more unpleasant in certain instances by reason of the consequent disruption of local price understandings?

Does it require great insight to perceive in the wholesale and retail cigarette situation something beyond mere predatory price cutting—something suggestive, perhaps, of a major shift in distributive systems?

Can one reasonably doubt the presence in the Lumber Industry of chronic forces far too deep and complex to be subjected to the simple treatment of requiring dealers to go through the pretense of selling their products at stipulated levels.

## COST AND MANAGEMENT

Is the decline of the Cast Iron Soil Pipe Industry to a condition where it operates at less than fifteen per cent capacity to be diagnosed as a case merely of "fallen prices."

How can it be questioned that the Rubber Tire Industry in its present stage, with its tremendous potentialities for change and development—painful though that change may be—is no fit subject for the sedative of minimum prices? It will scarcely be contended that it is a primary object of the Recovery Act to penalize efficiency and stifle advance in the means and methods by which the products of industry find their way to the ultimate consumer.

### Other Remedies

What could have been done? Consider briefly, once more, the case of Retail Solid Fuel: If a man who trucks coal from the mine to the bin is to be regarded as a "public enemy" we might have declared him to be such and driven him from the trade by law; if he or others misrepresent quality and give short weight, we might have provided public inspection and public scales; if racketeering, oppressive or potentially monopolistic dominance is threatened by certain units, we might have invoked the criminal law, including a possible rehabilitated anti-monopoly statute; and if circumstances establish the complete ineffectiveness of competition, we might have moved the industry into the realm of complete regulation of services and quality on a public utility basis. And if perchance we feel that the particular trials and tribulations which plague the industry in certain quarters are, after all, only the typical incidents of industrial change and progress, just conceivably we might have done nothing at all. Somehow, price fixing, the sole remedy which we sought so enthusiastically to administer, seems not to have been called for in the premises.

Confronted and terrified by disruptive forces beyond the control of their individual members, industries have asked that emergencies be proclaimed and prices fixed. This they have received; later the emergencies have been suspended and price restrictions removed. The disruptive forces remained. This is the very essence of futility! By dependence upon price fixing alone we have sought no result that we could define: we have achieved no result that we care to define.

But calculated futility is dangerous. Glowing expectations have been raised in the breast of every industry which has been granted the boon of emergency prices: its troubles are events of the past, only the promised land lies ahead. No one who has participated in the Administration's emergency price program can be insensible to the bitterness and antagonism which attends the inevitable disillusionment. The Recovery Administration will suffer no attacks more devastating than those which it invites by the indiscriminate raising of hopes to which it can not lend substance.

Emergency activity on the part of the Recovery Administration will continue to be futile until it comes to be guided by definite purpose and to embrace lines of control more direct and more fundamental than the fixing of prices. Emergency price fixing, unless completely recast and conceived of as one element only in a thoroughly reconstituted plan of governmental emergency action, has no place in a program of either recovery or reform.

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First Commercial Traveller—"You can't tell me you got an order for £5,000—not in these bad times."

Second Ditto—"I tell you I did. I'll show you the cancellation if you like."



## APRIL BUSINESS LESS FAVORABLE

### APRIL BUSINESS LESS FAVORABLE

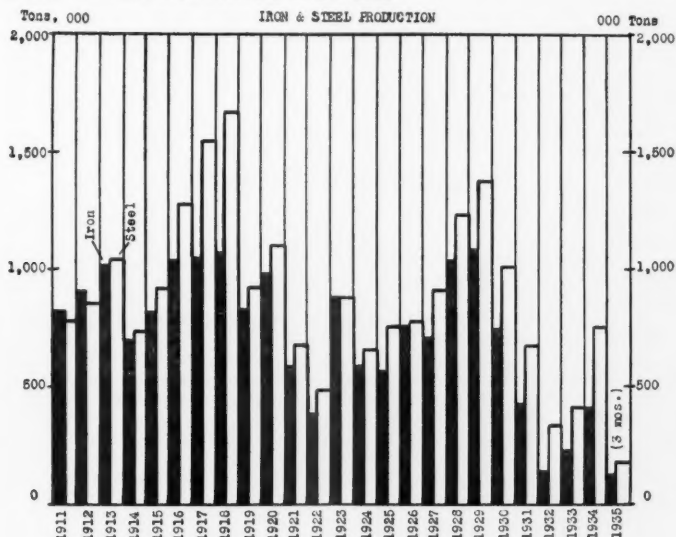
#### Did Not Quite Measure up to First Quarter of Year—Figures of Basic Iron and Steel Industry Show Rapid Gain

By M. A. McKAGUE

In 1935 to date there has been a fair gain in volume of business over last year, as shown by the following list of nine representative indexes and their respective gains in the first quarter of 1935 as compared with the first quarter of 1934.

Retail Sales .....	up 1 per cent.
Commodity prices .....	up 2 per cent.
Employment .....	up 3 per cent.
Railway car loadings .....	up 4 per cent.
Foreign trade .....	up 6 per cent.
Sugar output .....	up 25 per cent.
Automobile production .....	up 71 per cent.
Iron & steel production .....	up 100 per cent.
Building permits issued .....	up 209 per cent.

With the more general records, covering retail sales, car loadings, etc., show very small gains, the automobile and other basic industries listed are progressing more rapidly. These industries often foretell the trend of business as a whole.



April did not quite measure up to the first quarter, however. From the figures thus far available, it appears that there was a slackening in money turnover, in car loadings, and in a few other important records. Because the purchasing power of the public continues below

## COST AND MANAGEMENT

normal, and because of heavy taxation, and threats of government regulation, business finds it difficult to make real headway. The bad conditions existing in the United States are a further unfavorable influence, but a slightly more optimistic feeling is now apparent there, and has already brought more strength in the stock markets and in prices for silver and certain other commodities.

One of the strongest features in Canada is the rapid rate of recovery being shown by the iron and steel industry. The Canadian plants which are producing iron and steel in various forms, from iron ore and other raw materials, are few in number, but their output goes into farm implements, machinery, automobiles, building, plumbing and heating equipment, and hundreds of other kinds of products. For this reason the industry is closely identified with business as a whole, and its figures are regarded as one of the best guides to the trend of business, in Canada as in other countries.

The iron and steel industry was extremely dull in 1932, when only 144,000 tons of pig iron, and 343,000 tons of steel, were produced. In 1933 there was some gain, and again in 1934, the figures for the latter year being 407,000 tons of pig iron and 759,000 tons of steel. In the first quarter of 1935, as already noted, the total output was approximately double the output in the first quarter of 1934. While there were some special reasons for this, the broad trend of the figures is decidedly encouraging to business as a whole.

While these plants normally employ about 9,000 people, the number of employees in plants which make iron and steel products, that is, farm implements, machinery, automobiles and other products ready for use, reaches over 100,000 in normal times, and in the peak year it was about 140,000. When dependents are included, that means several hundred thousand people deriving their purchasing power from the vast iron and steel group of industries. Moreover, these varied industries are scattered through the whole country. The rapid pick-up in the industry therefore is a probable fore-runner to better business.

## MEMBERSHIP CHANGES

April, 1935

The membership formerly held by J. G. Barrow, of Dominion Rubber Co., Ltd., Montreal, has been transferred to G. A. Dugan of the same company.

W. S. Cowan, of Guelph Carpet & Worsted Spining Mills Co. Ltd., Guelph, is a new member of the Society.

Several drummers were seated in the smoking compartment of the train. They were bemoaning the generally demoralized conditions of business, as they found it.

Finally they turned to the quiet little man in the corner. "And how do you finds things, brother?"

"For the love of Pete, and what's your line, may we ask?"

"Selling red ink."

\* \* \*

"The wedding reception beggared description," says a report in a local paper. Not to mention father.

\* \* \*

An Irish evangelist always addressed his hearers as "dear souls," and when once addressing an audience in Ireland's famous city, he began, "dear Cork souls."

# Manufacturing Output in 1933

Extracts from a Report by The Dominion Bureau of Statistics—  
Decline Shown in All Main Figures.

**T**HE downward trend in manufacturing activity begun in the fall of 1929 continued with increasing force to about the middle of 1933. The first pronounced increase was reported for the month of June and thereafter each succeeding month recorded a slight gain over that of the preceding month. The gains in the latter part of the year were not, however, sufficiently pronounced to overcome the losses of the beginning of the year. As a result of this the output of manufactured products in 1933 was valued at \$2,086,847,847, a decrease of \$39,346,708 or 1.9 per cent as compared with 1932 and a decrease of \$1,942,523,493 or 48.5 per cent as compared with 1929. The number of persons engaged in manufacturing dropped from 694,434 in 1929 to 493,903 in 1933, a decline of 200,131 or 28.9 per cent. The decline in salary and wage payments exceeded even that of the number of employees, the drop being \$347,487,752 or 42.7 per cent of the amount paid out in 1929. Average earnings per employee in 1933, which amounted to \$942, represents a decrease of 19.6 per cent from the average earnings of \$1,171 in 1929. The following table shows the percentage decrease each year since 1929 in employment, salaries and wages paid, value of production and value added by manufacture.

	Percentage Decrease Compared			
	1930 with 1929	1931 with 1930	1932 with 1931	1933 with 1932
Employees .....	- 7.2	-13.5	-11.1	- .3
Salaries and wages paid	- 9.5	-15.2	-19.0	- 7.9
Gross value of products	-14.9	-21.3	-21.2	- 1.9
Value added by manufacture .....	-11.8	-16.3	-20.6	- 4.5

## How Averages are Computed

The large decrease in the number of employees in 1931 and 1932 is not, however entirely due to the decline in manufacturing production. The decrease is in part due to the change in method of computing the average annual employment of wage-earners. Between 1925 and 1930 the average was obtained by summing the averages of individual plants, based on the number of months in actual operation, and not by dividing by twelve the sum of the monthly employment figures. For example, if a plant operated only during three months of the year with an employment of 100 persons the first month, 125 the second month and 5 the third month, its average annual employment was taken as 100 (300 ÷ 3); the same as that of another plant which operated the whole year with an average employment of 100 persons per month. In 1931, however, a change was made to the old method whereby the aggregate of the monthly figures is divided by 12. This method gives the man year that each plant operates.

## COST AND MANAGEMENT

The change in method, therefore, affects the average annual employment as well as the average wages paid in seasonal industries, such as fruit and vegetable canning, fish canning, sawmills, etc.

Provinces where seasonal industries predominate, therefore, show a proportionately greater decrease in the number of employees in 1931 and 1932 as compared with the decrease in the salaries and wages paid, while industries that operate throughout the entire year are not affected by this change.

### Some Gained in 1933

Although for manufacturing in general in 1933 there were still slight decreases in employment, salaries and wages paid, gross value of products, etc., some groups, however, recorded increases in employment and gross value of production. The animal products group made the biggest gain in employment in 1933 with an increase of 6.3 per cent over the previous year, while the textiles and textile products group recorded an increase of 4 per cent. The vegetable products and chemicals and chemical products groups also reported slight increases in employment of 1.0 per cent and .7 per cent respectively. In the case of the other groups, employment dropped still lower, the decreases ranging from 7.1 per cent for the miscellaneous industries group to 2.2 per cent for wood and paper products. Although four groups reported increases in employment in 1933, yet only one of these reported an increase in the amount paid out in salaries and wages. This was the animal products group with an increased employment of 6.3 per cent and increased payments of only 1 per cent.

In value of production, only three groups exceeded their output of 1932. Non-ferrous metal products with an increase of 8.3 per cent in the value of production made the biggest gain. Textiles and textile

	Percentage Increase or Decrease in		
	Number of Employees	Salaries and Wages Paid	Gross Value of Products
CANADA .....	— 0.3	— 7.9	— 1.9
Prince Edward Island .....	— 7.1	—17.5	—13.7
Nova Scotia .....	+ 0.9	— 4.5	+ 5.1
New Brunswick .....	....	— 7.0	— 5.6
Quebec .....	+ 1.3	— 6.7	— 2.3
Ontario .....	— 1.4	— 8.5	— 2.2
Manitoba .....	— 6.8	—14.3	— 4.8
Saskatchewan .....	+ 1.4	— 8.2	....
Alberta .....	— 2.1	— 8.5	— 1.2
British Columbia and Yukon ..	+ 4.6	— 6.1	+ 3.3
ALL GROUPS .....	— .3	— 7.9	— 1.9
Vegetable products .....	+ 1.0	— 5.6	— 3.4
Animal products .....	+ 6.3	+ 1.0	+ 3.1
Textiles and textile products...	+ 4.0	— 2.6	+ 7.4
Wood and paper products .....	— 2.2	— 8.7	— 7.4
Iron and its products .....	— 4.4	—15.6	— 6.1
Non-ferrous mineral products..	— 5.4	—14.2	+ 8.3
Non-metallic mineral products..	— 5.1	—11.4	— 4.0
Chemicals and chemical products	+ .7	— 6.3	— 2.6
Miscellaneous industries .....	— 7.1	—12.5	—15.2
Central electric stations .....	— 4.4	— 7.9	— 8.5

## MANUFACTURING OUTPUT IN 1933

products were second with an improvement of 7.4 per cent and animal products were third with 3.1 per cent.

Not all provinces improved their position in 1933. British Columbia made the biggest advance in employment with an increase of 4.6 per cent. Saskatchewan was second with an increase of 1.4 per cent, Quebec third with 1.3 per cent and Nova Scotia fourth with .9 per cent. In the other provinces employment in 1933 was lower than the previous year. In Manitoba the decrease was 6.8 per cent, Alberta 2.1 per cent, Ontario 1.4 per cent, Prince Edward Island 7.1 per cent, and in New Brunswick employment was about the same. In gross value of production, only two provinces exceeded the output of the previous year, viz., Nova Scotia and British Columbia which reported increases of 5.1 per cent and 3.3 per cent respectively.

### Over 25,000 Plants

Manufacturing establishments reporting in 1933 numbered 25,232. Of these, 9,844 were located in Ontario, 8,384 in Quebec, 1,697 in British Columbia and Yukon, 1,378 in Nova Scotia, 1,073 in Manitoba, 975 in Alberta, 818 in Saskatchewan, 800 in New Brunswick and 263 in Prince Edward Island. These plants represented a capital investment of \$4,689,373,704 in fixed and working capital; they furnished employment to 493,903 persons who were paid \$465,562,090 in salaries and wages. They also produced goods with a selling value at the factory of \$2,086,847,847 and spent \$969,188,574 for materials, leaving the value added by manufacture at \$1,117,659,273. It should be remembered that the value added by manufacture does not represent the manufacturers' profits. The value added by manufacture is obtained by subtracting the cost of materials from the value of products. The difference represents the value added to the raw materials by labour. It is this difference which the employer of labour uses to pay for the labour itself, the overhead expenses, profits, etc. Compared with the previous year, there was a decline of \$52,566,599 in the value added by manufacture.

The manufacturing industries of Canada are concentrated largely in the provinces of Ontario and Quebec, although the Western Provinces are beginning to assume increasing importance. Ontario is the dominant manufacturing province of Canada. In 1933 with only 39 per cent of the establishments reporting, it employed 44.5 per cent of the capital, 47.7 per cent of the number of employees and produced 48.2 per cent of the entire output.

As mentioned before, the number of persons engaged in the manufacturing industries of Canada in 1933 totalled 493,903. Of these, 94,494 were salaried employees who were paid \$151,860,353 in salaries, and 399,409 were wage-earners who received \$313,701,767 in wages. In 1933 the average salary was \$1,607 and the average wage was \$785. Compared with the previous year, there was a decrease of \$125 in the average salary and \$67 in the average wage. In addition to the payments of salaries and wages, the fish cannery paid \$736,183 to 4,116 inside piece-workers who do not form part of the regular working force, while \$127,897 was paid to outside piece-workers, all of whom were employed in the textile industries.

# COST AND MANAGEMENT

Summary Statistics of Manufactures, 1923-1933.

Year	Establish- ments	Capital Invested	Em- ployees	Salaries and Wages	Cost of Materials Used	Gross Value of Products
	No.	\$	No.	\$	\$	\$
1923*	22,642	3,380,322,950	525,267	571,470,028	1,470,140,139	2,781,165,514
1924*	22,178	3,538,813,460	508,503	559,884,045	1,438,409,681	2,695,053,582
1925	22,331	3,808,309,981	544,225	596,015,171	1,587,665,408	2,948,545,315
1926	22,708	3,981,569,590	581,539	653,850,933	1,728,624,192	3,221,269,231
1927	22,936	4,337,631,558	618,933	693,932,228	1,758,789,334	3,394,713,270
1928	23,379	4,780,296,049	658,023	755,199,372	1,919,438,703	3,738,484,728
1929	23,597	5,083,014,754	694,434	813,049,842	2,032,020,975	4,029,371,340
1930	24,020	5,203,316,760	644,439	736,092,766	1,666,983,902	3,428,970,628
1931	24,501	4,961,312,408	557,426	624,545,561	1,223,880,011	2,698,461,862
1932	24,544	4,741,255,610	495,398	505,883,323	955,968,683	2,126,194,555
1933	25,232	4,689,373,704	493,903	465,562,090	969,188,574	2,086,847,847

\* Statistics for 1923 and 1924 do not include the Non-ferrous Metal Smelting Industry.

## MANUFACTURING OUTPUT IN 1933

### Pulp and Paper Industry Leads

From statistics of the forty leading industries it may be seen that the pulp and paper industry again exceeded all others in the gross value of production. Other leading industries in order of their importance were:

Rank in 1933	Industry	Rank in 1932
1.	Pulp and Paper	1.
2.	Central electric stations	2.
3.	Non-ferrous metal smelting	6.
4.	Slaughtering and meat packing	3.
5.	Flour and feed mills	4.
6.	Butter and cheese	5.
7.	Petroleum products	7.
8.	Bread and other bakery products	9.
9.	Cotton yarn and cloth	16.
10.	Printing and publishing	8.

In salaries and wages paid, which is probably a better index of the importance of an industry, the order of the leading industries is materially changed. Pulp and paper comes first in this category too.

The leading industries were as follows:—

Rank according to Salaries and Wages Paid	1933 Industry	Rank according to Gross Value of Products
1.	Pulp and paper	1.
2.	Printing and publishing	10.
3.	Central electric station	2.
4.	Bread and other bakery products	8.
5.	Railway rolling stock	24.
6.	Hosiery and knitted goods	14.
7.	Butter and cheese	5.
8.	Electrical apparatus and supplies	17.
9.	Printing and bookbinding	25.
10.	Clothing, factory, women's	11.

It was grand of you to dive from that height, fully clothed, to save the young woman, the lookeron exclaimed.

That's all very well, snarled the hero, but what I want to know is—who pushed me in.

\* \* \*

The saddest story of the month was about the too-observant fellow who remarked to his girl—"Your stockings seem rather wrinkled, dearest."

"You brute," exclaimed the girl, "I have no stockings on."

\* \* \*

Issy had just gone in his father's business. One day he asked: "Father, vat is dis ethics I hear about, dis business ethics?"

"Vell," said the old Mo, "ethics is a new-fangled idea invented to obstruct de smooth flow of bissiness—a sort of rules vich governs de transactions between one bissiness man and anudder. For instance, a customer come into the shop this morning and I sell him some goods for two dollars. He give me two fi' dollar bills stuck togedder. Now, the question of bissiness ethics in dis case vas, should I tell—dat is, should I tell my partner?"



## CHAPTER NOTES

### TORONTO

(Reported by W. A. McKague, General Secretary)

Toronto Chapter had an interesting and varied meeting for its close of the season, on April 24th, at the Royal York Hotel. Mr. Harry H. Hallatt, well-known speaker on monetary matters, gave an interesting talk in Scientific Money—Its Issue and Recall, with such good effect that many of the members refused to drop the subject even after an hour's entertainment, and remained for an extra session which lasted well into the night. We do not know whether Mr. Hallatt secured any actual converts but he at least had an appreciative audience, illustrative of the keen public interest in currency questions just now.

The entertainment was a miniature floor show arranged through R. D. King, of the Savarin, Toronto. It comprised a small orchestra and several singers and dancers of varied skill and classification. If we had not been crowded out of our usual meeting room we could have had an even greater display, but the members and guests did not appear to object to the close quarters.

This being the annual meeting of the Chapter, chairman Sorley and treasurer Taylor reported its affairs in good shape, with a balance of receipts over disbursements. The following were elected directors: G. Appleton, Toronto Hydro-Electric System; R. S. M. Ausman, Gurney Foundry Co. Ltd.; H. E. Bunt, Lever Bros. Ltd.; R. W. E. Dilworth, C.A., Clarkson, Gordon, Dilworth, Guilfoyle & Nash; G. R. M. Dingle, Massey-Harris Co. Ltd.; H. M. Hetherington, Viceroy Mfg. Co. Ltd.; C. D. Landell, Canada Dry Ginger Ale, Ltd.; G. G. McConnell, C.A., Riddell, Stead, Graham & Hutchison; J. M. McKee, International Business Machines Co. Ltd.; H. S. Pratt, Consolidated Bakeries, Ltd.; W. F. Putt, Steel Company of Canada Ltd.; C. P. Roberts, F.C.A., J. P. Langley & Co.; S. H. Sorley, C.A., Thorne, Mulholland, Howson & McPherson; R. F. Bruce Taylor, C.A., Edwards, Morgan & Co.; C. E. Whitten, Firstbrook Boxes Ltd.

At a subsequent meeting of the directors, Mr. Dingle was elected chairman, the other offices to be filled at the next meeting.

The attendance at the meeting totalled 74, making it one of the biggest in the record of the Chapter.

### HAMILTON

Reported by R. Dawson

The closing meeting of the Hamilton Chapter was a memorable one, for the presence of Mr. R. J. Menary, Chief Accountant of the City of Hamilton, who spoke on "Our Civic Accounting Structure," attracted a real crowd. Close on fifty were present to hear a very fine talk by Mr. Menary, and everyone went away knowing considerably more than was the case before the meeting. By means of charts, the speaker showed the growth in population of Hamilton and the resultant increase in tax rate, also the borrowings by debentures from 1915 to 1934, with the consequent rise in interest payments.

## CHAPTER NOTES

At the close he answered numerous questions, and was tendered a hearty vote of thanks for his fine talk.

The attendance at this meeting brought the average up to 34 per meeting, which is considered very fine.

Messrs. W. H. Furneaux and W. G. Smitton, were awarded prizes for good attendance, each having attended every meeting, while the attendance teams captured by Messrs. Dawson and Menzel were found to be tied on points for the season.

The past season has, undoubtedly, been the best in years, and the Directors look forward with every confidence to a banner season commencing next fall.

The following are the newly elected officers:- Chairman, A. G. Howey, Mercury Mills Ltd.; vice-chairman, O. H. Menzel, Polymet of Canada Ltd.; secretary-treasurer, R. Dawson, The Hoover Company. Directors, M. I. Long, C.A.; A. C. Frazer, The Steel Co. of Can. Ltd., A. J. Ballentyne, The Firestone Tire & Rubber Co. Ltd., K. M. Horton, Cosmos Imperial Mills Ltd., W. R. Ward, Dominion Natural Gas Co. Ltd., and H. P. Wright, Wright Pounder & Co.

It is understood that the annual meeting of the Society will be held in Hamilton late this month. In this connection a golf game will be held, probably at the Hamilton Golf & Country Club and it is to be hoped that a large number of members will be present, both at the game and at the meeting. Due notice will be given, so get ready.

## CENTRAL ONTARIO

(Reported by W. A. McKague, General Secretary)

Central Ontario Chapter held its final meeting of the season on April 11th, at Guelph, where through Chairman Earnshaw's courtesy the Armouries again provided an atmosphere of sociability and comfort. Mr. L. Presgrave, of J. D. Woods & Co., spoke on Bonus Systems for the Control of Materials and Waste. While his talk was informal, it revealed Mr. Presgrave's thorough familiarity with his subject, and was listened to with much interest by those present. A question period followed.

This was also the annual meeting of the Chapter, and the members feeling that though conditions were still difficult, a good centre of interest in cost accounting and related subjects had been built up, the opinion was unanimous that the Chapter should continue its work. The following were elected directors for the ensuing year:

G. Earnshaw, of Guelph Carpet & Worsted Spinning Mills Co. Ltd., Guelph; J. E. Osborne, of Canada Ingot Iron Co. Ltd., Guelph; G. R. Good, of Kaufman Rubber Co. Ltd., Kitchener; E. Tailby, I.P.A., of Kitchener; W. L. Jardine, of Clare Bros. & Co. Ltd., Preston; J. Henderson, of Newlands & Co. Ltd., Galt; and R. T. F. Odendahl, of LaFrance Textiles, Ltd., Woodstock. Mr. Jardine was elected chairman, and Mr. Henderson, secretary.

A storekeeper had for some time displayed in his window a card inscribed, "Fishing Tickle."

A customer drew the proprietor's attention to the spelling.

"Has anyone told you of it before?" he asked.

"Hundreds," replied the dealer, "but whenever they drop in to tell me they always spend something."

## COST AND MANAGEMENT

### MCGILL UNIVERSITY'S NEW HEAD

(From the Montreal Gazette)

London, April 13.—Tall and bespectacled, Arthur Eustace Morgan, who will be McGill University's new principal, told The Canadian Press today "I shall feel among friends" when he takes up his new appointment. Mr. Morgan, one of the most distinguished scholars and educationalists in the United Kingdom, has been principal of University College at Hull, Yorkshire, since 1926. He is 49 years of age, and in his general appearance is not unlike the late General Sir Arthur Currie, whom he succeeds at McGill.

"It is no small thing to cross the Atlantic for a new line of life at middle age," he said today, "but as I have lectured in several centres east and west on the American continent I feel I shall be among friends from the start. My only direct association with Canada so far has been confined to short holiday visits. The appointment with McGill is undoubtedly a very great responsibility but the call is too strong to be ignored. Although I shall regret leaving Hull very much as it has been a great privilege to have helped in founding University College, which has been made possible by the late Rt. Hon. T. R. Feren. Whatever has been achieved here has only been through the loyal co-operation of those who shared Mr. Feren's ideals."

When he became head of University College on its foundation in June, 1926, Mr Morgan brought to Hull the benefit of several years of special study of university problems and organization, and wide experience in university extension work. The success University College has attained in its comparatively short life is the best tribute to his principalship.

"I venture to think," said Mr. Morgan, "that the college has established a reputation not only in the city and district, but has also won a place in the British academic world.

"University colleges and universities do not grow in a day, however, nor even in a short span of years. Nothing great can be done unless the people of Yorkshire and North Lincolnshire ratify this belief by making growth possible. I particularly regret leaving just at a moment when the college is striving to develop a new association, which it is hoped will grow rapidly into a strong buttress of the college's finances."

His appointment as principal and vice-chancellor of McGill has been received with special interest in the north of England, where his eminence, particularly as a student of English drama, is well recognized.

The Yorkshire Post today commented that McGill is not only the premier university in Canada, but of the Empire outside Britain, and occupies a special distinction as a centre of British culture in North America. The responsibility which falls on the Englishman occupying the position of principal "is obviously great," it added.

Of course, all of us are workers. Only a few of us acquire millions, however, while the majority are digging up dimes. Why should there be this inequality in reward? Perhaps Sambo's explanation is as good as any.

"How is it," asked the foreman, "that although you and Rastus started digging at the same time, he has a bigger pile of dirt than you?"

"Why, boss," answered Sambo, "he's diggin' a bigger hole!"

